

इंटरनेट

मानक

Disclosure to Promote the Right To Information

Whereas the Parliament of India has set out to provide a practical regime of right to information for citizens to secure access to information under the control of public authorities, in order to promote transparency and accountability in the working of every public authority, and whereas the attached publication of the Bureau of Indian Standards is of particular interest to the public, particularly disadvantaged communities and those engaged in the pursuit of education and knowledge, the attached public safety standard is made available to promote the timely dissemination of this information in an accurate manner to the public.

“जानने का अधिकार, जीने का अधिकार”

Mazdoor Kisan Shakti Sangathan

“The Right to Information, The Right to Live”

“पुराने को छोड़ नये के तरफ”

Jawaharlal Nehru

“Step Out From the Old to the New”

IS 13615 (1993): Service definition for the association control service element in open systems interconnection for information processing systems [LITD 14: Software and System Engineering]



“ज्ञान से एक नये भारत का निर्माण”

Satyanarayan Gangaram Pitroda

“Invent a New India Using Knowledge”



“ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है”

Bhartrhari—Nitiśatakam

“Knowledge is such a treasure which cannot be stolen”

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भारतीय मानक

सूचना प्रक्रमण तंत्रों के लिये खुले तंत्र अंतर सम्पर्क में
सहचार्यता नियंत्रण तत्व की सेवा परिभाषा

Indian Standard

SERVICE DEFINITION FOR THE ASSOCIATION
CONTROL SERVICE ELEMENT IN OPEN SYSTEMS
INTERCONNECTION FOR INFORMATION
PROCESSING SYSTEMS

UDC 681.327.9.01

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
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Price Group 9

NATIONAL FOREWORD

This Indian Standard which is identical with ISO 8649 : 1988 'Information processing systems—Open systems interconnection — Service definition for the association control service element', issued by the International Organization for Standardization (ISO) was adopted by the Bureau of Indian Standards on the recommendation of the Computer Systems and Interconnection Sectional Committee and approval of the Electronics and Telecommunication Division Council.

In the adopted standard certain terminology and conventions are however not identical to those used in Indian Standards. Attention is particularly drawn to the following:

Wherever the words 'International Standard' appear referring to this standard, they should be read as 'Indian Standard'.

In this Indian Standard, the following international standards are referred to. Read in their respective place the following:

<i>International Standard</i>	<i>Indian Standard</i>
ISO 7498 Information processing systems—Open systems interconnection — Basic reference model	IS 12373 (Part 1) : 1987 Basic reference model of open systems interconnection for information processing systems : Part 1 (Identical)
ISO 7498-3 Information processing systems—Open systems Interconnction — Basic reference model — Part 3 Naming and addressing	IS 12373 (Part 3) : 1992 Basic reference model of open systems interconnection for information processing systems : Part 3 Naming and addressing (Identical)
ISO 8650 Information processing systems — Open systems interconnection — Protocol specification for the association control service element	IS 13706 : 1993 Protocol specification for the association control service element in open systems interconnection for information processing systems (Identical)
ISO 8822 Information processing systems — Open systems interconnection — Connection oriented presentation service definition	IS Connection oriented presentation service definition in open systems interconnection for information processing systems (<i>under preparation</i>) (Identical)

The technical committee responsible for the preparation of this standard has reviewed the provisions of the following ISO Standards and has decided that they are acceptable for use in conjunction with this standard:

ISO/TR 8509 Information processing systems — Open systems interconnection — Service Conventions

ISO 8326 Information processing systems — Open systems interconnection — Basic connection oriented session service definition

ISO 8327 Information processing systems — Open systems interconnection — Basic connection oriented session protocol specification

CCITT Recommendation X.410 : Message handling systems : remote operation and reliable transfer server (1984)

The text of Amendment No. 1 and Amendment No. 2 to ISO 8649 : 1988 is being given at the end of this standard.

Only the English language text in the international standard has been retained while adopting it in this standard.

ISO 8649

AMENDMENT 1: Authentication during association establishment

{ MOVE THE INTRODUCTION (THE ORIGINAL CLAUSE 0) TO THE FRONT OF THE INTERNATIONAL STANDARD AS A PRELIMINARY ELEMENT. WHEN THIS IS DONE, THE INTRODUCTION WILL BE ON PAGE "iv" AND THE NUMBERS PRECEDING THE PARAGRAPHS OF THE ORIGINAL CLAUSE 0 WILL BE DELETED. }

0 Introduction

{ MODIFY THE FOURTH PARAGRAPH (I.E. THE ORIGINAL 0.4) AS FOLLOWS. }

0.4 This International Standard defines services provided by the application service element for application-association control: the Association Control Service Element (ACSE). The ACSE provides basic facilities for the control of an application-association between two application-entities that communicate by means of a presentation-connection. *«The ACSE includes a functional unit for exchanging information in support of authentication during association establishment. The ACSE services apply to a wide range of application-process communication requirements.»*

1 Scope

{ INSERT THE FOLLOWING TEXT AS THE NEW SECOND PARAGRAPH OF CLAUSE 1. }

Two functional units are defined in the ACSE. The mandatory Kernel functional unit is used to establish and release application-associations. The optional Authentication functional unit provides additional facilities for exchanging information in support of authentication during association establishment without adding services. The ACSE authentication facilities may be used to support a limited class of authentication methods.

{ END OF INSERTED PARAGRAPH. }

2 «Normative» references

{ INSERT THE FOLLOWING TEXT AS THE NEW PARAGRAPH UNDER CLAUSE 2 BEFORE THE LIST OF REFERENCES. }

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

{ ADD THE FOLLOWING REFERENCES. }

ISO 7498-2:1989, *Information processing systems — Open Systems Interconnection — Basic Reference Model — Part 2: Security architecture.*

ISO/IEC 9545:1989, *Information technology — Open Systems Interconnection — Application Layer Structure.*

ISO/IEC 9834-1¹, *Information technology — Open Systems Interconnection — Procedures for the operation of OSI Registration Authorities — Part 1: General procedures.*

{ END OF ADDED REFERENCES. }

3 Definitions

3.1 Reference model definitions

3.1.1 Basic reference model definitions *(NEW HEADING)*

{ MOVE TEXT FROM THE ORIGINAL SUBCLAUSE 3.1 TO THIS SUBCLAUSE AND ADD THE FOLLOWING TERMS MAINTAINING ALPHABETICAL ORDER. }

application-function

(N)-function

1) To be published.

{INSERT NEW SUBCLAUSE 3.1.2.}

3.1.2 Security architecture definitions {NEW}

This International Standard makes use of the following terms defined in ISO 7498-2:

- a) credentials;
- b) password; and
- c) peer-entity authentication.

{END OF INSERTED SUBCLAUSE 3.1.2.}

3.1.3 Naming and addressing definitions {PREVIOUSLY 3.2} **{MOVE TEXT FROM ORIGINAL 3.2 TO THIS SUBCLAUSE.}**

3.2 Service conventions definitions {PREVIOUSLY 3.3} **{MOVE TEXT FROM ORIGINAL 3.3 TO THIS SUBCLAUSE.}**

3.3 Presentation service definitions {PREVIOUSLY 3.4} **{MOVE TEXT FROM THE ORIGINAL 3.4 TO THIS SUBCLAUSE.}**

3.4 ACSE service definitions {PREVIOUSLY 3.5} **{MOVE TEXT FROM THE ORIGINAL 3.5 TO THIS SUBCLAUSE AND** **ADD THE FOLLOWING DEFINITIONS MAINTAINING ALPHABETICAL** **ORDER.}**

3.4._ authentication: The corroboration of the identity of objects relevant to the establishment of an association. For example, these can include the AEs, APs, and the human users of applications.

NOTE — This term has been defined to make it clear that a wider scope of authentication is being addressed than is covered by peer-entity authentication in ISO 7498-2.

3.4._ authentication-function: An application-function within an application-entity invocation that processes and exchanges authentication-values with a peer authentication-function.

3.4._ authentication-value: The output from an authentication-function to be transferred to a peer ACSE service-user for input to the peer's authentication-function.

3.4._ authentication-mechanism: The specification of a specific set of authentication-function rules for defining, processing, and transferring authentication-values.

{INSERT NEW SUBCLAUSE 3.5.}

3.5 Application Layer Structure definitions {NEW}

This International Standard makes use of the following terms defined in ISO/IEC 9545:

- a) application-entity invocation;
- b) single association control function; and
- c) single association object.

{END OF INSERTED SUBCLAUSE 3.5.}

4 Abbreviations

{ADD THE FOLLOWING ABBREVIATIONS MAINTAINING ALPHABETICAL ORDER.}

AEI	application-entity invocation
SACF	single association control function
SAO	single association object

{END OF ADDED ABBREVIATIONS.}

5 Conventions {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

6 Basic concepts

{USING THE ORIGINAL CLAUSE 6 AS A BASE, REPLACE CLAUSE 6 WITH THE FOLLOWING TEXT.}

{INSERT NEW HEADING 6.1. MOVE ORIGINAL PARAGRAPHS 6.1 THROUGH 6.4 UNDER THIS NEW HEADING AS PARAGRAPHS 6.1.1 THROUGH 6.1.4. THEN, INSERT NEW PARAGRAPHS 6.1.5 THROUGH 6.1.7. ALSO, INSERT NEW SUBCLAUSE 6.2}

6.1 General {NEW HEADING}

6.1.1 The reference model (ISO 7498) represents communication between a pair of application-processes (APs) in terms of communication between their application-entities (AEs) using the presentation-service. The functionality of an AE is factored into a number of application-service-elements (ASEs). The interaction between AEs is described in terms of the use of their ASEs' services.

6.1.2 This International Standard introduces the additional modeling concepts of application-association and application context.

6.1.3 An **application-association** is a cooperative relationship between two AEs. It provides the necessary frame of reference between the AEs in order that they may interwork effectively. This relationship is formed by the exchange of application-protocol-control-information between the application-entities through their use of presentation-services.

6.1.4 An **application context** is an explicitly identified set of application-service-elements, related options and any other necessary information for the interworking of application-entities on an application association.

6.1.5 {NEW} The ACSE service-user is that part of an application-entity that makes use of ACSE services. It may be the single association control function (SACF) or an ASE or some combination of the two.

6.1.6 {NEW} An ASE standard does not need to specify the use of ACSE service primitive parameters that are not relevant to the operation of the ASE. It may be assumed that the SACF passes such parameters between the ACSE service-provider and that part of the AEI to which the parameters are relevant.

6.1.7 {NEW} As an example, consider the authentication parameters of the Authentication functional unit discussed below in 6.2. The SACF may be used to model the passing of authentication-values between the authentication-func-

Indian Standard

SERVICE DEFINITION FOR THE ASSOCIATION CONTROL SERVICE ELEMENT IN OPEN SYSTEMS INTERCONNECTION FOR INFORMATION PROCESSING SYSTEMS

0 Introduction

0.1 This International Standard is one of a set of International Standards produced to facilitate the interconnection of information processing systems. It is related to other International Standards in the set as defined by the Reference Model for Open Systems Interconnection (ISO 7498). The reference model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

0.2 The goal of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

0.3 This International Standard recognizes that application-processes may wish to communicate with each other for a wide variety of reasons. However, any communication will require the performance of certain services independent of the reasons for communication. The application-service-element defined herein provides such services.

0.4 This International Standard defines services provided by the application service element for application-association control: the Association Control Service Element (ACSE). The ACSE provides basic facilities for the control of an application-association between two application-entities that communicate by means of a presentation-connection.

0.5 The use of services defined in this International Standard is also governed by the use of the presentation-service (ISO 8822) and the session-service (ISO 8326).

0.6 It is recognized that, with respect to ACSE Quality of Services (QOS), described in clause 9, work is still in progress to provide an integrated treatment of QOS across all layers of the OSI Reference Model, and to ensure that the individual treatments in each layer service satisfy overall QOS objectives in a consistent manner. As a consequence,

an addendum may be added to this International Standard at a later time which reflects further QOS developments and integration.

1 Scope and field of application

This International Standard defines ACSE services for application-association control in an open systems interconnection environment. The ACSE services are provided by the use of the ACSE protocol (ISO 8650) in conjunction with the presentation-service (ISO 8822). The ACSE services assume as a minimum the use of the presentation-service Kernel functional unit.

This International Standard does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system.

No requirement is made for conformance to this International Standard.

2 References

ISO 7498, *Information processing systems - Open Systems Interconnection - Basic Reference Model*

ISO 7498-3, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Part 3 Naming and Addressing*.¹

ISO 8326, *Information processing systems - Open Systems Interconnection - Basic connection oriented session service definition*.

ISO 8327, *Information processing systems - Open Systems Interconnection - Basic connection oriented session protocol specification*.

ISO/TR 8509, *Information processing systems - Open Systems Interconnection - Service conventions*.

¹ At present at the stage of draft, publication anticipated in due course.

tion and the ACSE service-provider. An ASE that references ACSE need not be concerned with these parameters.

6.2 Authentication {NEW}

This International Standard includes the Authentication functional unit. The functional unit allows APIs, AEs and their related objects to exchange authentication information during the establishment of an association.

6.2.1 Authentication concepts

This International Standard includes the modeling concepts of authentication-function, authentication-mechanism, authentication-mechanism name and authentication-value. Each is discussed below.

6.2.1.1 Authentication-function

6.2.1.1.1 For this International Standard, authentication is supported by a pair of authentication-functions. An authentication-function is modeled as an application-function (i.e., is an (N)-function as defined in ISO 7498) that is available to the ACSE service-user. Each is contained within the associated AEs.

6.2.1.1.2 Modeling the authentication-function in this way allows ACSE to deal with authentication communication requirements without having to understand the semantics of the security information exchanged or how it is used.

6.2.1.2 Authentication-mechanism

6.2.1.2.1 An authentication-mechanism is a particular specification of the processing to be performed by a pair of application-functions for authentication. A specification contains the rules for creating, sending, receiving and processing information needed for authentication.

6.2.1.2.2 Annex B in ISO 8650 is an example of an authentication-mechanism. It defines the authentication of the sending AE based on its AE title and its password. The password is contained in the Authentication-value parameter.

6.2.1.3 Authentication-mechanism name

6.2.1.3.1 An authentication-mechanism name is used to specify a particular authentication-mechanism. For example, the name of the authentication-mechanism specified in ISO 8650 annex B is assigned (i.e., registered) in the annex. The value has the data type of an OBJECT IDENTIFIER.

6.2.1.3.2 An authentication-mechanism name may also be used to specify a more general security mechanism that includes an authentication-mechanism. An example of a general security mechanism is an ASE that provides security facilities to its service-user).

6.2.1.3.3 Authentication-mechanism names and general security mechanism names are subject to registration within OSI (see clause 12 in ISO 8650).

6.2.1.4 Authentication-value

6.2.1.4.1 An authentication-value consists of information used by a pair of authentication-functions to perform authentication. It can consist of information such as, credentials, a time-stamp, a digital signature, etc. It can also identify the

type and/or name of object to be authenticated, such as the AE, a human user, etc.

6.2.1.4.2 The semantic structure of an authentication-value is specified by the authentication-mechanism involved.

6.2.1.4.3 An authentication-function provides an authentication-value to its AE to be sent to the peer AE. The peer AE's authentication-function receives and processes this authentication-value. For example, it may use the value to authenticate objects at the sending AE.

6.2.1.4.4 An authentication-mechanism may be part of a ASE that provides security facilities to its service-user. In this situation, the authentication-mechanism name identifies the ASE; the authentication-value is an APDU of the ASE.

6.2.2 ACSE authentication facilities

6.2.2.1 The ACSE Kernel functional unit does not support authentication. However, AP Title, AE Qualifier, AP invocation-identifier and AE invocation-identifier values are optionally transferred during the establishment of an association. They may be used to identify the calling, called and responding AEs.

6.2.2.2 The ACSE Authentication functional unit supports the transfer of authentication-values as part of the A-ASSOCIATE service. An authentication-value is treated as an atomic item by ACSE. Its semantics are transparent to the ACSE service-provider.

6.2.2.3 The facilities of the Authentication functional unit may be used to convey other security-related information. This may be done with the transfer of authentication information during association establishment.

{END OF REPLACED CLAUSE 6.}

7 Service overview

{INSERT THE NEW HEADING 7.1.}

7.1 ACSE services {NEW HEADING}

{MOVE THE PARAGRAPHS UNDER ORIGINAL CLAUSE 7 TO THIS SUBCLAUSE AND RENUMBER THE PARAGRAPHS ACCORDINGLY. THEN INSERT NEW SUBCLAUSE 7.2.}

7.2 Functional units {NEW}

7.2.1 Functional units are used by this International Standard to identify ACSE user requirements during association establishment. Two functional units are defined:

- a) Kernel functional unit; and
- b) Authentication functional unit.

7.2.2 The Kernel functional unit is always available, and includes the basic services identified in 7.1.

7.2.3 The Authentication functional unit supports authentication during association establishment. The availability of this functional unit is negotiated during association establishment. This functional unit does not include additional

services. It adds parameters to the A-ASSOCIATE and A-ABORT services.

7.2.4 Table a shows the services and parameters associated with the ACSE functional units. The services and their parameters are discussed in clause 9.

{INSERT NEW TABLE a. RENUMBER THE REMAINING TABLES AND ADJUST REFERENCES TO THESE TABLES IN THE TEXT.}

8 Relationship with other ASEs and lower layer services {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

9 Service definition

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.1 A-ASSOCIATE service

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.1.1 A-ASSOCIATE parameters

{TABLE 2 — ADD THE FOLLOWING PARAMETERS AFTER Responding AE Invocation-identifier.}

ACSE Requirements	U	C	C	C(=)
Authentication-mechanism Name	U	C(=)	U	C(=)
Authentication-value	U	C(=)	U	C(=)

{INSERT NEW SUBCLAUSES 9.1.1.14a, 9.1.1.14b AND 9.1.1.14c AFTER SUBCLAUSE 9.1.1.14 Responding AE Invocation-identifier.}

9.1.1.14a ACSE Requirements {NEW}

This parameter is used by the requestor to indicate the functional units requested for the association. If not present,

Table a — Functional unit services and their parameters {NEW}

Functional Unit	Service	Parameter
Kernel	A-ASSOCIATE	Mode Application Context Name Calling AP Title Calling AE Qualifier Calling AP Invocation-identifier Calling AE Invocation-identifier Called AP Title Called AE Qualifier Called AP Invocation-identifier Called AE Invocation-identifier Responding AP Title Responding AE Qualifier Responding AP Invocation-identifier Responding AE Invocation-identifier User Information Result Result Source Diagnostic Calling Presentation Address Called Presentation Address Responding Presentation Address Presentation Context Definition List Presentation Context Definition Result List Default Presentation Context Name Default Presentation Context Result Quality of Service Session Requirements Initial Synchronization Point Serial Number Initial Assignment of Tokens Session-connection Identifier
	A-RELEASE	Reason User Information Result
	A-ABORT	Abort Source User Information
	A-P-ABORT	Provider Reason
Authentication	A-ASSOCIATE	Authentication-mechanism Name Authentication-value
	A-ABORT	Diagnostic

only the Kernel functional unit is available for the association. In supporting this negotiation mechanism, the ACSE service-provider removes values for unsupported functional units before issuing the indication primitive to the acceptor.

This parameter is used by the acceptor to indicate which of the requested functional units the acceptor selects. The acceptor shall not select a functional unit in the response primitive which was not requested in the indication primitive.

The value of the parameter in the response primitive is delivered unchanged in the confirm primitive.

This parameter takes on the following symbolic value:

—authentication.

9.1.1.14b Authentication-mechanism Name {NEW}

This parameter is only used if the ACSE Requirements parameter includes the Authentication functional unit. If present, the value of this parameter identifies the authentication-mechanism in use. If not present, the communicating AEs must implicitly know the mechanism in use, e.g., by prior understanding.

NOTES

1 Some authentication-mechanisms may require this parameter, and if so, will state this in their specification.

2 This parameter may specify a more general authentication mechanism. For example, it may specify an ASE that provides security facilities to its service-user.

9.1.1.14c Authentication-value {NEW}

This parameter shall only be used if the ACSE Requirements parameter includes the Authentication functional unit.

The Authentication-value parameter is used as defined below.

a) If present on the request or the response primitive, it contains an authentication-value generated by the authentication-function in the AEI that issued the service primitive. It is intended for the peer's authentication-function.

b) If present on the indication or the confirm primitive, it contains an authentication-value generated by the authentication-function in the AEI that issued the corresponding request or response primitive. It is intended for the peer's authentication-function.

{END OF INSERTED SUBCLAUSES 9.1.1.a, 9.1.1.b AND 9.1.1.c.}

9.1.1.18 Diagnostic

{REPLACE THE FIRST PARAGRAPH USING THE FOLLOWING TEXT.}

This parameter may be used by the acceptor to provide diagnostic information about the establishment of the association.

{TO THE LIST OF SYMBOLIC VALUES FOR THE ACSE SERVICE-USER ADD THE FOLLOWING.}

Authentication-mechanism Name not recognized;

Authentication-mechanism Name required;

Authentication failure; or

Authentication required.

{END OF ADDED SYMBOLIC VALUES.}

9.1.2 A-ASSOCIATE procedure {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.2 A-RELEASE service {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.3 A-ABORT service

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.3.1 A-ABORT parameters

{TABLE 4 – ADD THE FOLLOWING PARAMETER AFTER Abort Source.}

Diagnostic	U	C(=)
------------	---	------

{RENUMBER THE ORIGINAL 9.3.1.2 AS 9.3.1.3. INSERT NEW SUBCLAUSE 9.3.1.2 USING THE FOLLOWING TEXT.}

9.3.1.2 Diagnostic

The requestor may optionally include diagnostic information on the request primitive. It takes one of the following symbolic values:

No reason given;

Protocol error;

Authentication-mechanism Name not recognized;

Authentication-mechanism Name required;

Authentication failure; or

Authentication required.

9.3.2 A-ABORT service procedure {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.4 A-P-ABORT service {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

10 Sequencing information {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

ISO 8649

AMENDMENT 2: Connectionless-mode ACSE Service

{MOVE THE INTRODUCTION (THE ORIGINAL CLAUSE 0) TO THE FRONT OF THE INTERNATIONAL STANDARD AS A PRELIMINARY ELEMENT. WHEN THIS IS DONE, THE INTRODUCTION WILL BE ON PAGE "iv" AND THE NUMBERS PRECEDING THE PARAGRAPHS OF THE ORIGINAL CLAUSE 0 WILL BE DELETED.}

~~0~~ Introduction

{ADD AN ADDITIONAL PARAGRAPH FOLLOWING THE FOURTH PARAGRAPH AS FOLLOWS.}

ACSE provides both connection-oriented and connectionless mode of service. For its connection-oriented services, the ACSE uses presentation connection-oriented services (ISO 8822). For the connectionless service, the ACSE uses the presentation connectionless service (ISO 8822/Amd.1).

1 Scope

{DELETE THE FIRST PARAGRAPH AND REPLACE WITH THE FOLLOWING THREE PARAGRAPHS}

This International Standard defines ACSE services for application-association control in an open systems interconnection environment.

The ACSE connection-oriented services are provided by the use of the connection-oriented ACSE protocol (ISO 8650) in conjunction with the connection-oriented presentation-service (ISO 8822). These ACSE services assume as a minimum the use of the presentation-service connection-oriented Kernel functional unit.

The ACSE connectionless-mode service (A-UNIT-DATA) is provided by the use of the connectionless ACSE protocol (ISO/IEC 10035) in conjunction with the connectionless-mode presentation-service (P-UNIT-DATA - ISO 8822/Amd.1).

2 Normative References

{ADD THE FOLLOWING REFERENCES}

ISO 7498/Add.1: 1987, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Addendum 1: Connectionless-mode transmission.*

ISO/IEC 10035: 1991, *Information technology - Open Systems Interconnection - Connectionless ACSE Protocol to provide to Provide the Connectionless-mode ACSE Service.*

ISO 8822/Amd.1: 1991, *Information processing systems - Open Systems Interconnection - Connection oriented presentation service definition - Amendment 1: Connectionless mode presentation service.*

3 Definitions

3.1 Reference Model Definitions

3.1.1 Basic reference model definitions

{REPLACE THE SENTENCE UNDER 3.1.1 WITH THE FOLLOWING TEXT}

This International Standard is based on the concepts developed in ISO 7498 and 7498/Add.1 and makes use of the following terms defined in them:

{ADD THE FOLLOWING TO THE LIST OF TERMS ACCORDING TO THE ALPHABETICAL ORDER:}

- connectionless-mode presentation-service;
- (N)-connectionless-mode transmission.

3.3 Presentation service definitions

{REPLACE THE TEXT UNDER 3.3 WITH THE FOLLOWING}

This International Standard makes use of the following terms defined in ISO 8822 and ISO 8822/Add.1.

{ADD THE FOLLOWING TO THE LIST OF TERMS}

ISO 8650, *Information processing systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element*.

ISO 8822, *Information processing systems - Open Systems Interconnection - Connection oriented presentation service definition*.

CCITT Recommendation X.410: *Message Handling Systems: Remote Operation and Reliable Transfer Server (1984)*.

3 Definitions

3.1 Reference model definitions

This International Standard is based on the concepts developed in ISO 7498 and makes use of the following terms defined in it:

- a) Application Layer;
- b) application-process;
- c) application-entity;
- d) application-service-element;
- e) application-protocol-data-unit;
- f) application-protocol-control-information;
- g) presentation-service;
- h) presentation-connection;
- i) session-service;
- j) session-protocol; and
- k) session-connection.

3.2 Naming and addressing definitions

This International Standard makes use of the following terms defined in ISO 7498-3:

- a) application-process title;
- b) application-entity qualifier;
- c) application-entity title;¹
- d) application-process invocation-identifier;
- e) application-entity invocation-identifier; and

- f) presentation address.

3.3 Service conventions definitions

This International Standard makes use of the following terms defined in ISO/TR 8509:

- a) service-provider;
- b) service-user;
- c) confirmed service;
- d) non-confirmed service;
- e) provider-initiated service;
- f) primitive;
- g) request (primitive);
- h) indication (primitive);
- i) response (primitive); and
- j) confirm (primitive).

3.4 Presentation service definitions

This International Standard makes use of the following terms defined in ISO 8822:

- a) abstract syntax;
- b) abstract syntax name;
- c) default context;
- d) defined context set;
- e) functional unit [presentation];
- f) normal mode [presentation];
- g) presentation context;
- h) presentation data value; and
- i) X.410-1984 mode [presentation].

3.5 ACSE service definitions

For the purpose of this International Standard, the following definitions apply:

3.5.1 application-association; association: A cooperative relationship between two application-entities, formed by

¹ As defined in ISO 7498-3, an application-entity title is composed of an application-process title and an application-entity qualifier. The ACSE service provides for the transfer of an application-entity title value by the transfer of its component values.

their exchange of application-protocol-control-information through their use of presentation-services

3.5.2 application context: An explicitly identified set of application-service-elements, related options and any other necessary information for the interworking of application-entities on an application-association.

NOTE — This definition is subject to refinement as a result of ongoing work in the area of the Application Layer structure

3.5.3 Association Control Service Element: The particular application-service-element defined in this International Standard

3.5.4 ACSE service-user: The part of the application-entity that makes use of ACSE services

3.5.5 ACSE service-provider: An abstraction of the totality of those entities which provide ACSE services to peer ACSE service-users

3.5.6 requestor: The ACSE service-user that issues the request primitive for a particular ACSE service. For a confirmed service, it also receives the confirm primitive

3.5.7 acceptor: The ACSE service-user that receives the indication primitive for a particular ACSE service. For a confirmed service, it also issues the response primitive

3.5.8 association-initiator: The ACSE service-user that initiates a particular association, i.e., the requestor of the A-ASSOCIATE service that establishes the association

3.5.9 association-responder: The ACSE service-user that is not the initiator of a particular association, i.e., the acceptor of the A-ASSOCIATE service that establishes the association

3.5.10 normal mode The mode of ACSE operation that results in the transfer of ACSE semantics, using the presentation-service

3.5.11 X.410-1984 mode: The mode of ACSE operation that allows ACSE service-users to interwork using the protocol specified in CCITT Recommendation X 410-1984. The use of this mode results in no transfer of ACSE semantics.

3.5.12 disrupt: A service procedure is disrupted by another service procedure if the second service results in service primitives not being used as specified for the procedure of the first service.

4 Abbreviations

The following abbreviations are used in this International Standard.

ACSE	Association Control Service Element
AE	application-entity
ASE	application-service-element
OSI	Open Systems Interconnection
QOS	Quality of Service

5 Conventions

5.1 This International Standard defines services for the ACSE following the descriptive conventions defined in ISO/TR 8509. In clause 9, the definition of each ACSE service includes a table that lists the parameters of its primitives. For a given primitive, the presence of each parameter is described by one of the following values

blank	not applicable
C	conditional
M	mandatory
P	subject to conditions defined in ISO 8822
U	user option

5.2 In addition, the notation (=) indicates that a parameter value is semantically equal to the value to its left in the table

6 Basic concepts

6.1 The reference model (ISO 7498) represents communication between a pair of application-processes (APs) in terms of communication between their application-entities (AEs) using the presentation-service. The functionality of an AE is factored into a number of application-service-elements (ASEs). The interaction between AEs is described in terms of the use of their ASEs' services

6.2 This International Standard introduces the additional modeling concepts of application-association and application context

6.3 An application-association is a cooperative relationship between two AEs. It provides the necessary frame of reference between the AEs in order that they may interwork effectively. This relationship is formed by the exchange of application-protocol-control-information between the application-entities through their use of presentation-services

6.4 An application context is an explicitly identified set of application-service-elements, related options and any other necessary information for the interworking of application-entities on an application association

7 Service overview

7.1 This International Standard defines the following services for the control of a single association

- A-ASSOCIATE,
- A-RELEASE,
- A-ABORT, and
- A-P-ABORT.

7.2 The A-ASSOCIATE service causes the start of use of an association by those ASE procedures identified by the value of Application Context Name parameter

NOTE — The use of an association by several ASEs is the subject of ongoing work.

7.3 The A-RELEASE service, if successful, causes the completion of the use of an association by those ASE procedures identified by the application context that is in effect without loss of information in transit. However, the success of the A-RELEASE service may be negotiated.

7.4 The A-ABORT service causes the abnormal release of the association with the possible loss of information in transit.

7.5 The A-P-ABORT service indicates the abnormal release of the association as a result of action by the underlying presentation-service with the possible loss of information in transit.

7.6 For a particular association, the ACSE services operate in one of the following modes:

- a) normal mode; or
- b) X.410-1984 mode.

7.7 The normal mode of operation allows the ACSE service-user to take full advantage of the functionality provided by both ACSE and the presentation-service (ISO 8822). In this mode the ACSE service-provider transfers its semantics using the normal mode of the presentation-service.

7.8 The X.410-1984 mode of operation allows the ACSE service-user to interwork with a peer using the protocol specified by the CCITT Recommendation X.410-1984. In this mode, the ACSE service-provider does not transfer any semantics of its own and uses the X.410-1984 mode of the presentation-service.

8 Relationship with other ASEs and lower layer services

8.1 Other application-service-elements

8.1.1 The ACSE is intended to be used with other ASEs in order to support a specific information processing task. Therefore, it is expected that the ACSE will be included in all application context specifications.

8.1.2 The collection of the ACSE and other ASE(s) included in an application context are required to use the facilities of the presentation-service in a coordinated manner.

8.2 Presentation-service

8.2.1 A one-to-one correspondence exists between an application-association and a presentation-connection.

8.2.2 The ACSE services require access to the P-CONNECT, P-RELEASE, P-U-ABORT and P-P-ABORT services. The ACSE services neither use nor constrain the use of any other presentation service.

8.2.3 The requestor and acceptor of the A-ASSOCIATE service determine the mode, the default presentation context, and the initial defined context set of the underlying presentation-connection using the following A-ASSOCIATE parameters:

- Mode;
- Presentation Requirements;
- Presentation Context Definition List;
- Presentation Context Definition Result List;
- Default Presentation Context Name; and
- Default Presentation Context Result.

8.2.4 If the requestor specifies the value "normal" for the Mode parameter, the last five parameters above determine the presentation context facility for the association according to the rules for the normal mode of the presentation-service (ISO 8822). At the conclusion of the A-ASSOCIATE procedure, the requestor and acceptor must have obtained a presentation context that supports the abstract syntax specified in ISO 8650 for the ACSE application-protocol-data-units.

NOTE — The ACSE service-provider is aware of the presentation context that contains its abstract syntax by a local mechanism.

8.2.5 If the requestor specifies the value "X.410-1984" for the Mode parameter, the ACSE service-provider does not transfer ACSE semantics and therefore does not require a presentation context for its abstract syntax. However, the user information that the ACSE service-provider does transfer uses the unnamed default presentation context for the X.410-1984 mode of the presentation-service (ISO 8822).

NOTE — Table 2 indicates the A-ASSOCIATE service parameters that are not used in the X.410-1984 mode. None of the presentation context related parameters are used.

8.3 Session-service

8.3.1 Using the Session Requirements parameter, the A-ASSOCIATE service requestor and acceptor determine the functional units for the underlying session-service (ISO 8326).

8.3.2 The rules and the parameter value length restrictions of the underlying session-service affect ACSE services. The ACSE service-user must be aware of these constraints.

NOTE — Some examples of these constraints are:

a) Version 1 of the session-protocol (ISO 8650) imposes user data length restrictions which affect ACSE primitive parameters. Some special considerations apply to the A-ABORT service (see 9.3).

b) The choice of session functional units for a particular association affects the rules for the use of ACSE services. For example, the selection of session tokens controls the possibilities of negotiated release and release collisions.

9 Service definition

The ACSE services are listed in table 1.

Table 1 - ACSE-services

SERVICE	TYPE
A-ASSOCIATE	Confirmed
A-RELEASE	Confirmed
A-ABORT	Non-confirmed
A-P-ABORT	Provider-initiated

9.1 A-ASSOCIATE service

The A-ASSOCIATE service is used to cause the beginning of the use of an association; it is a confirmed service.

9.1.1 A-ASSOCIATE parameters

Table 2 lists the A-ASSOCIATE service parameters. In addition, groups of parameters are defined for reference by other ASEs as follows:

a) Calling AE Title is the composite of the Calling AP Title and the Calling AE Qualifier parameters;

b) Called AE Title is the composite of the Called AP Title and the Called AE Qualifier parameters; and

c) Responding AE Title is the composite of the Responding AP Title and the Responding AE Qualifier parameters.

The two components of the AE title (AP title and AE qualifier) are defined in ISO 7498-3.

9.1.1.1 Mode

This parameter specifies the mode in which the ACSE services will operate for this association. It takes one of the following symbolic values:

- normal; or
- X.410-1984.

If this parameter is not included on the request primitive, the default value of "normal" is used by the ACSE service-provider. This parameter is always present on the indication primitive.

Table 2 - A-ASSOCIATE parameters

Parameter Name	Req	Ind	Rsp	Cnf
Mode	U	M(=)		
• Application Context Name	M	M(=)	M	M(=)
• Calling AP Title	U	C(=)		
• Calling AE Qualifier	U	C(=)		
• Calling AP Invocation-identifier	U	C(=)		
• Calling AE Invocation-identifier	U	C(=)		
• Called AP Title	U	C(=)		
• Called AE Qualifier	U	C(=)		
• Called AP Invocation-identifier	U	C(=)		
• Called AE Invocation-identifier	U	C(=)		
• Responding AP Title			U	C(=)
• Responding AE Qualifier			U	C(=)
• Responding AP Invocation-identifier			U	C(=)
• Responding AE Invocation-identifier			U	C(=)
User Information	U	C(=)	U	C(=)
Result			M	M(=)
Result Source				M
• Diagnostic			U	C(=)
Calling Presentation Address	P	P		
Called Presentation Address	P	P		
Responding Presentation Address			P	P
• Presentation Context Definition List	P	P		
• Presentation Context Definition Result List			P	P
• Default Presentation Context Name	P	P		
• Default Presentation Context Result			P	P
Quality of Service	P	P	P	P
• Presentation Requirements	P	P	P	P
Session Requirements	P	P	P	P
Initial Synchronization Point Serial Number	P	P	P	P
Initial Assignment of Tokens	P	P	P	P
Session-connection Identifier	P	P	P	P
* - not used in X.410-1984 mode				

9.1.1.2 Application Context Name

This parameter identifies the application context proposed by the requestor. The acceptor returns either the same or a different name. The returned name specifies the application context to be used for this association.

NOTE — The offer of an alternate application context by the acceptor provides a possible mechanism for limited negotiation. However, the semantics and rules for this exchange are entirely user specific. If the requestor cannot operate in the acceptor's application context, it may issue an A-ABORT request primitive.

9.1.1.3 Calling AP Title

This parameter identifies the AP that contains the requestor of the A-ASSOCIATE service.

9.1.1.4 Calling AE Qualifier

This parameter identifies the particular AE of the AP that contains the requestor of the A-ASSOCIATE service.

9.1.1.5 Calling AP Invocation-identifier

This parameter identifies the AP invocation that contains the requestor of the A-ASSOCIATE service.

9.1.1.6 Calling AE Invocation-identifier

This parameter identifies the AE invocation that contains the requestor of the A-ASSOCIATE service.

9.1.1.7 Called AP Title

This parameter identifies the AP that contains the intended acceptor of the A-ASSOCIATE service.

9.1.1.8 Called AE Qualifier

This parameter identifies the particular AE of the AP that contains the intended acceptor of the A-ASSOCIATE service.

9.1.1.9 Called AP Invocation-identifier

This parameter identifies the AP invocation that contains the intended acceptor of the A-ASSOCIATE service.

9.1.1.10 Called AE Invocation-identifier

This parameter identifies the AE invocation that contains the intended acceptor of the A-ASSOCIATE service.

9.1.1.11 Responding AP Title

This parameter identifies the AP that contains the actual acceptor of the A-ASSOCIATE service.

9.1.1.12 Responding AE Qualifier

This parameter identifies the particular AE of the AP that contains the actual acceptor of the A-ASSOCIATE service.

9.1.1.13 Responding AP Invocation-identifier

This parameter identifies the AP invocation that contains the actual acceptor of the A-ASSOCIATE service.

9.1.1.14 Responding AE Invocation-identifier

This parameter identifies the AE invocation that contains the actual acceptor of the A-ASSOCIATE service.

9.1.1.15 User Information

Either the requestor or the acceptor may optionally include user information. Its meaning depends on the application context that accompanies the primitive.

NOTE — For example, this parameter may be used to carry the initialization information of other ASEs included in the application context specified by the value of the accompanying Application Context Name parameter.

9.1.1.16 Result

This parameter¹ is provided by either the acceptor, by the ACSE service-provider, or by the presentation service-provider. It indicates the result of using the A-ASSOCIATE service. It takes one of the following symbolic values:

- accepted;
- rejected (permanent); or
- rejected (transient).

9.1.1.17 Result Source

The value of the parameter¹ is supplied by the ACSE service-provider. It identifies the creating source of the Result parameter and the Diagnostic parameter, if present. It takes one of the following symbolic values:

- ACSE service-user;
- ACSE service-provider; or
- presentation service-provider.

NOTE — If the Result parameter has the value "accepted", the value of this parameter is "ACSE service-user."

9.1.1.18 Diagnostic

This parameter¹ is only used if the Result parameter has the value of "rejected(permanent)" or "rejected(transient)." Optionally, it can be used to provide diagnostic information about the result of the A-ASSOCIATE service.

¹ It is recognized that, with respect to this parameter, work is still in progress to provide an integrated treatment across all layers of the OSI Reference Model. As a consequence, an addendum may be added to this International Standard at a later time that reflects further developments and integration.

If the Result Source parameter has the value "ACSE service-provider", it takes one of the following symbolic values:

- no reason given, or
- no common ACSE version.

If the Result Source parameter has the value "ACSE service-user", it takes one of the following symbolic values:

- no reason given,
- application context name not supported,
- calling AP title not recognized,
- calling AE qualifier not recognized,
- calling AP invocation-identifier not recognized,
- calling AE invocation-identifier not recognized
- called AP title not recognized,
- called AE qualifier not recognized,
- called AP invocation-identifier not recognized, or
- called AE invocation-identifier not recognized

9.1.1.19 Calling Presentation Address

This parameter is as defined in ISO 8822.

9.1.1.20 Called Presentation Address

This parameter is as defined in ISO 8822

9.1.1.21 Responding Presentation Address

This parameter is as defined in ISO 8822

9.1.1.22 Presentation Context Definition List

This parameter is as defined in ISO 8822

9.1.1.23 Presentation Context Definition Result List

This parameter is as defined in ISO 8822

9.1.1.24 Default Presentation Context Name

This parameter corresponds to the Default Context Name parameter defined in ISO 8822

9.1.1.25 Default Presentation Context Result

This parameter corresponds to the Default Context Result parameter defined in ISO 8822.

9.1.1.26 Quality of Service

This parameter is as defined in ISO 8822

9.1.1.27 Presentation Requirements

This parameter is as defined in ISO 8822

9.1.1.28 Session Requirements

This parameter is as defined in ISO 8822.

9.1.1.29 Initial Synchronization Point Serial Number

This parameter is as defined in ISO 8822.

9.1.1.30 Initial Assignment of Tokens

This parameter is as defined in ISO 8822.

9.1.1.31 Session Connection Identifier

This parameter is as defined in ISO 8822

9.1.2 A-ASSOCIATE service procedure

9.1.2.1 The A-ASSOCIATE service procedure has a one-to-one correspondence with the P-CONNECT service defined in ISO 8822. When the A-ASSOCIATE service is used, the association is created simultaneously with the creation of the underlying presentation-connection

9.1.2.2 An ACSE service-user that desires to establish an association issues an A-ASSOCIATE request primitive. The called AE is identified by parameters of the request primitive. The requestor cannot issue any primitives except an A-ABORT request primitive until it receives an A-ASSOCIATE confirm primitive.

9.1.2.3 The ACSE service-provider issues an A-ASSOCIATE indication primitive to the acceptor.

9.1.2.4 The acceptor accepts or rejects the association by sending an A-ASSOCIATE response primitive with an appropriate Result parameter. ACSE service-provider issues an A-ASSOCIATE confirm primitive having the same Result parameter. The Result Source parameter is assigned the symbolic value of "ACSE service user."

9.1.2.5 If the acceptor accepts the association, the association is available for use. Requestors in both AEs may now use any service provided by the AEs included in the application context that is in effect (with the exception of A-ASSOCIATE).

9.1.2.6 If the acceptor rejects the association, the association is not established.

9.1.2.7 The ACSE service-provider may not be capable of supporting the requested association. In this situation, it returns an A-ASSOCIATE confirm primitive to the requestor with an appropriate Result parameter. The Result Source parameter is appropriately assigned either the symbolic value of "ACSE service-provider" or "presentation service provider." The indication primitive is not issued. The association is not established.

9.1.2.8 A requestor in either AE may disrupt the A-ASSOCIATE service procedure by issuing an A-ABORT request primitive. The acceptor receives an A-ABORT indication primitive. The association is not established.

9.2 A-RELEASE service

The A-RELEASE service is used by a requestor in either AE to cause the completion of the use of an association, it is a confirmed service. If the session Negotiated Release functional unit was selected for the association, the acceptor may respond negatively (see 8.3.2). This causes the unsuccessful completion of the A-RELEASE service and the con

tinuation of the association without loss of information in transit.

9.2.1 A-RELEASE parameters

Table 3 lists the A-RELEASE parameters.

Table 3 - A-RELEASE parameters

Parameter name	Req	Ind	Rep	Cnf
* Reason	U	C(=)	U	C(=)
* User Information	U	C(=)	U	C(=)
Result			M	M(=)
* - not used in X.410-1984 mode				

9.2.1.1 Reason

When used on the request primitive, this parameter identifies the general level of urgency of the request. It takes one of the following symbolic values:

- normal;
- urgent; or
- user defined.

NOTE — For example, if the session Negotiated Release functional unit was selected for the association, the value "urgent" may be used on the request primitive when the requestor desires to urgently release the association.

When used on the response primitive, this parameter identifies information about why the acceptor accepted or rejected the release request. It takes one of the following symbolic values:

- normal;
- not finished; or
- user defined.

NOTE — For example, if the session Negotiated Release functional unit was not selected for the association, the value "not finished" may be used on the response primitive when the acceptor is forced to release the association but wishes to give a warning that it has additional information to send or receive.

9.2.1.2 User Information

Either the requestor or acceptor may optionally include user information on the request or response primitive. Its meaning depends on the application context that is in effect.

9.2.1.3 Result

This parameter is used by the acceptor to indicate if the request to release the association normally is acceptable. It takes one of the following symbolic values:

- affirmative; or
- negative.

9.2.2 A-RELEASE service procedure

9.2.2.1 The A-RELEASE service procedure has a one-to-one correspondence with the P-RELEASE service defined in ISO 8822. When the A-RELEASE service is used, the association is released simultaneously with the release of the under-

lying presentation-connection.

9.2.2.2 An ACSE service-user that desires to release the association issues an A-RELEASE request primitive. This requestor cannot issue any further primitives other than an A-ABORT request primitive until it receives an A-RELEASE confirm primitive.

9.2.2.3 In order to issue an A-RELEASE request primitive, the requestor is required to meet all the requirements for issuing a P-RELEASE request (see 8.2).

9.2.2.4 The ACSE service-provider issues an A-RELEASE indication primitive to the acceptor. The acceptor then cannot issue any ACSE primitives other than an A-RELEASE response primitive or an A-ABORT request primitive.

9.2.2.5 The acceptor replies to the A-RELEASE indication primitive by issuing an A-RELEASE response primitive with a Result parameter that has a value of "affirmative" or "negative." The acceptor may give a negative response only if the session Negotiated Release functional unit was selected for the association (see 8.3).

9.2.2.6 If the acceptor gives a negative response, it may once again use any service provided by the ASEs included in the application context that is in effect (with the exception of the A-ASSOCIATE service). If it gave a positive response, it cannot issue any further primitives for the association.

9.2.2.7 The ACSE service-provider issues an A-RELEASE confirm primitive with an "affirmative" or "negative" value for the Result parameter. If the value is "negative", the requestor may once again use any of the services provided by the ASEs of the application context that is in effect (with the exception of A-ASSOCIATE).

9.2.2.8 If the value of the Result parameter is "affirmative", the association and the underlying presentation-connection have been released.

9.2.2.9 A requestor in either AE may disrupt the A-RELEASE service procedure by issuing an A-ABORT request. The acceptor receives an A-ABORT indication. The association is released with the possible loss of information in transit.

9.2.2.10 An A-RELEASE service procedure collision results when requestors in both AEs simultaneously issue an A-RELEASE service primitive. This can occur only when no session tokens are available on the association (see 8.3). In this situation, both ACSE service-users receive an unexpected A-RELEASE indication primitive. The following sequence then occurs to complete the normal release of the association.

- a) The association-initiator issues an A-RELEASE response primitive.
- b) The association-responder waits for an A-RELEASE confirm primitive from its peer. When it receives one, it then issues an A-RELEASE response primitive.
- c) The association-initiator receives an A-RELEASE confirm primitive

9.2.2.11 The association is released when both ACSE service-users have received an A-RELEASE confirm primitive.

9.3 A-ABORT service

The A-ABORT service is used by a requestor in either AE to cause the abnormal release of the association. It is a non-confirmed service. However, because of the possibility of an A-ABORT service procedure collision (see 10.3.5), the delivery of the indication primitive is not guaranteed. However, both AEs are aware that the association has been released.

9.3.1 A-ABORT parameters

Table 4 lists the A-ABORT parameters.

Table 4 - A-ABORT parameters

Parameter name	Req	Ind
* Abort Source User Information	U	M C(=)
* - not used in X.410-mode		

9.3.1.1 Abort Source

This parameter indicates the initiating source of this abort. It takes one of the following symbolic values:

- ACSE service-user; or
- ACSE service-provider.

9.3.1.2 User Information

The requestor may optionally include user information on the request primitive. Its meaning depends on the application context that is in effect.

NOTE — When ACSE is supported with version 1 of the session-protocol (ISO 8327), this parameter is subject to length restrictions mentioned in 8.3. For use with version 1, the A-ABORT service procedure does not transfer any of its own semantics,

thus allowing the maximum possible length for presentation data value(s) of the User Information parameter. In this situation, the Abort Source parameter of the A-ABORT indication primitive always indicates "ACSE service-user."

9.3.2 A-ABORT service procedure

9.3.2.1 The A-ABORT service procedure has a one-to-one correspondence with the P-U-ABORT service defined in ISO 8822. When the A-ABORT service is used, the association is abnormally released simultaneously with the abnormal release of the underlying presentation-connection.

9.3.2.2 An ACSE service-user that desires to abnormally release the association issues the A-ABORT request primitive. This requestor cannot issue any further primitives for the association.

9.3.2.3 The ACSE service-provider issues an A-ABORT indication primitive to the acceptor. The ACSE service-provider assigns the value of "ACSE service-user" for the Abort Source parameter. The association and the underlying presentation-connection have been released.

9.3.2.4 The ACSE service-provider may itself cause the abnormal release of the association because of internal errors detected by it. In this case, the ACSE service-provider issues A-ABORT indication primitives to acceptors in both AEs. The ACSE service-provider assigns the value of "ACSE service-provider" to the Abort Source parameter. The User Information parameter is not used.

9.4 A-P-ABORT service

The A-P-ABORT service is used by the ACSE service-provider to signal the abnormal release of the association due to problems in services below the Application Layer. This occurrence indicates the possible loss of information in transit. A-P-ABORT is a provider-initiated service.

9.4.1 A-P-ABORT parameter

Table 5 lists the A-P-ABORT parameter.

Table 5 - A-P-ABORT parameter

Parameter name	Ind
Provider Reason	P

Provider Reason: This parameter is as defined in ISO 8822.

9.4.2 A-P-ABORT service procedure

When the ACSE service-provider detects an error reported by the underlying presentation-service, it issues A-P-ABORT indication primitives to acceptors in both AEs. The association is abnormally released. Requestors in both AEs cannot issue any further primitives for the association.

10 Sequencing information

This clause defines the interaction among the ACSE service procedures for a particular association.

10.1 A-ASSOCIATE

10.1.1 Type of service

A-ASSOCIATE is a confirmed service.

10.1.2 Usage restrictions

The A-ASSOCIATE service is not used on an established association.

10.1.3 Disrupted service procedures

The A-ASSOCIATE service procedure does not disrupt any other service procedure.

10.1.4 Disrupting service procedures

The A-ASSOCIATE service procedure is disrupted by the A-ABORT and the A-P-ABORT service procedures.

10.1.5 Collisions

An A-ASSOCIATE service procedure collision results when requestors in both AEs simultaneously issue an A-ASSOCIATE request primitive for each other. Both ACSE service-users are issued A-ASSOCIATION indication primitives that represent distinct associations. Both can choose to accept or reject the indicated association by issuing an A-ASSOCIATE response primitive with the appropriate value for its Result parameter. This will result in the establishment of none, one or two associations.

NOTE — If an AE has several concurrent associations, a local mechanism is needed to distinguish between them.

10.2 A-RELEASE

10.2.1 Type of service

A-RELEASE is a confirmed service.

10.2.2 Usage restrictions

The A-RELEASE service is only used on an established association.

10.2.3 Disrupted service procedures

The A-RELEASE service procedure does not disrupt any other service procedure.

10.2.4 Disrupting service procedures

The A-RELEASE service procedure is disrupted by the A-ABORT or A-P-ABORT service procedures.

10.2.5 Collisions

An A-RELEASE service procedure collision results when requestors in both AEs simultaneously issue an A-RELEASE request primitive. The processing of A-RELEASE service procedure collisions is described in 9.2.2.

10.2.6 Further sequencing information

The use of the A-RELEASE service is subject to the constraints on the S-RELEASE service defined in ISO 8326 (see 8.3).

10.3 A-ABORT

10.3.1 Type of service

A-ABORT is a non-confirmed service.

10.3.2 Usage restrictions

The A-ABORT service has effect only when used on an association in the process of establishment, on an established association, or on an association in the process of being released.

10.3.3 Disrupted service procedures

The A-ABORT service procedure disrupts the A-ASSOCIATE and A-RELEASE service procedures.

10.3.4 Disrupting service procedures

The A-ABORT service procedure is disrupted by the A-P-ABORT service procedure.

10.3.5 Collisions

An A-ABORT service procedure collision results when requestors in both AEs simultaneously issue the A-ABORT request primitive. The collision processing is governed by the P-U-ABORT service defined in ISO 8822. In this situation, neither A-ABORT indication primitive is issued.

10.3.6 Further sequencing information

Any use of the A-ABORT service results in the abnormal release of the association, or the abnormal termination of the A-ASSOCIATE service procedure or the A-RELEASE service procedure with possible loss of information.

10.4 A-P-ABORT

10.4.1 Type of service

A-P-ABORT is a provider-initiated service.

10.4.2 Usage restrictions

No restrictions are placed on the occurrence of this service.

10.4.3 Disrupted service procedures

The A-P-ABORT service procedure disrupts all other service procedures.

10.4.4 Disrupting service procedures

The A-P-ABORT service procedure is not disrupted by any other service procedure.

ISO 8649

AMENDMENT 1: Authentication during association establishment

{MOVE THE INTRODUCTION (THE ORIGINAL CLAUSE 0) TO THE FRONT OF THE INTERNATIONAL STANDARD AS A PRELIMINARY ELEMENT. WHEN THIS IS DONE, THE INTRODUCTION WILL BE ON PAGE "iv" AND THE NUMBERS PRECEDING THE PARAGRAPHS OF THE ORIGINAL CLAUSE 0 WILL BE DELETED.}

0 Introduction

{MODIFY THE FOURTH PARAGRAPH (I.E. THE ORIGINAL 0.4) AS FOLLOWS.}

0.4 This International Standard defines services provided by the application service element for application-association control: the Association Control Service Element (ACSE). The ACSE provides basic facilities for the control of an application-association between two application-entities that communicate by means of a presentation-connection. «The ACSE includes a functional unit for exchanging information in support of authentication during association establishment. The ACSE services apply to a wide range of application-process communication requirements.»

1 Scope

{INSERT THE FOLLOWING TEXT AS THE NEW SECOND PARAGRAPH OF CLAUSE 1.}

Two functional units are defined in the ACSE. The mandatory Kernel functional unit is used to establish and release application-associations. The optional Authentication functional unit provides additional facilities for exchanging information in support of authentication during association establishment without adding services. The ACSE authentication facilities may be used to support a limited class of authentication methods.

{END OF INSERTED PARAGRAPH.}

2 «Normative» references

{INSERT THE FOLLOWING TEXT AS THE NEW PARAGRAPH UNDER CLAUSE 2 BEFORE THE LIST OF REFERENCES.}

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

{ADD THE FOLLOWING REFERENCES.}

ISO 7498-2:1989, *Information processing systems — Open Systems Interconnection — Basic Reference Model — Part 2: Security architecture.*

ISO/IEC 9545:1989, *Information technology — Open Systems Interconnection — Application Layer Structure.*

ISO/IEC 9834-1¹, *Information technology — Open Systems Interconnection — Procedures for the operation of OSI Registration Authorities — Part 1: General procedures.*

{END OF ADDED REFERENCES.}

3 Definitions

3.1 Reference model definitions

3.1.1 Basic reference model definitions {NEW HEADING}

{MOVE TEXT FROM THE ORIGINAL SUBCLAUSE 3.1 TO THIS SUBCLAUSE AND ADD THE FOLLOWING TERMS MAINTAINING ALPHABETICAL ORDER.}

application-function

(N)-function

1) To be published.

{INSERT NEW SUBCLAUSE 3.1.2.}

3.1.2 Security architecture definitions {NEW}

This International Standard makes use of the following terms defined in ISO 7498-2:

- a) credentials;
- b) password; and
- c) peer-entity authentication.

{END OF INSERTED SUBCLAUSE 3.1.2.}

3.1.3 Naming and addressing definitions {PREVIOUSLY 3.2} {MOVE TEXT FROM ORIGINAL 3.2 TO THIS SUBCLAUSE.}

3.2 Service conventions definitions {PREVIOUSLY 3.3} {MOVE TEXT FROM ORIGINAL 3.3 TO THIS SUBCLAUSE.}

3.3 Presentation service definitions {PREVIOUSLY 3.4} {MOVE TEXT FROM THE ORIGINAL 3.4 TO THIS SUBCLAUSE.}

3.4 ACSE service definitions {PREVIOUSLY 3.5} {MOVE TEXT FROM THE ORIGINAL 3.5 TO THIS SUBCLAUSE AND ADD THE FOLLOWING DEFINITIONS MAINTAINING ALPHABETICAL ORDER.}

3.4._ authentication: The corroboration of the identity of objects relevant to the establishment of an association. For example, these can include the AEs, APs, and the human users of applications.

NOTE — This term has been defined to make it clear that a wider scope of authentication is being addressed than is covered by peer-entity authentication in ISO 7498-2.

3.4._ authentication-function: An application-function within an application-entity invocation that processes and exchanges authentication-values with a peer authentication-function.

3.4._ authentication-value: The output from an authentication-function to be transferred to a peer ACSE service-user for input to the peer's authentication-function.

3.4._ authentication-mechanism: The specification of a specific set of authentication-function rules for defining, processing, and transferring authentication-values.

{INSERT NEW SUBCLAUSE 3.5.}

3.5 Application Layer Structure definitions {NEW}

This International Standard makes use of the following terms defined in ISO/IEC 9545:

- a) application-entity invocation;
- b) single association control function; and
- c) single association object.

{END OF INSERTED SUBCLAUSE 3.5.}

4 Abbreviations

{ADD THE FOLLOWING ABBREVIATIONS MAINTAINING ALPHABETICAL ORDER.}

AEI	application-entity invocation
SACF	single association control function
SAO	single association object

{END OF ADDED ABBREVIATIONS.}

5 Conventions {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

6 Basic concepts

{USING THE ORIGINAL CLAUSE 6 AS A BASE, REPLACE CLAUSE 6 WITH THE FOLLOWING TEXT.}

{INSERT NEW HEADING 6.1. MOVE ORIGINAL PARAGRAPHS 6.1 THROUGH 6.4 UNDER THIS NEW HEADING AS PARAGRAPHS 6.1.1 THROUGH 6.1.4. THEN, INSERT NEW PARAGRAPHS 6.1.5 THROUGH 6.1.7. ALSO, INSERT NEW SUBCLAUSE 6.2.}

6.1 General {NEW HEADING}

6.1.1 The reference model (ISO 7498) represents communication between a pair of application-processes (APs) in terms of communication between their application-entities (AEs) using the presentation-service. The functionality of an AE is factored into a number of application-service-elements (ASEs). The interaction between AEs is described in terms of the use of their ASEs' services.

6.1.2 This International Standard introduces the additional modeling concepts of application-association and application context.

6.1.3 An **application-association** is a cooperative relationship between two AEs. It provides the necessary frame of reference between the AEs in order that they may interwork effectively. This relationship is formed by the exchange of application-protocol-control-information between the application-entities through their use of presentation-services.

6.1.4 An **application context** is an explicitly identified set of application-service-elements, related options and any other necessary information for the interworking of application-entities on an application association.

6.1.5 {NEW} The ACSE service-user is that part of an application-entity that makes use of ACSE services. It may be the single association control function (SACF) or an ASE or some combination of the two.

6.1.6 {NEW} An ASE standard does not need to specify the use of ACSE service primitive parameters that are not relevant to the operation of the ASE. It may be assumed that the SACF passes such parameters between the ACSE service-provider and that part of the AE to which the parameters are relevant.

6.1.7 {NEW} As an example, consider the authentication parameters of the Authentication functional unit discussed below in 6.2. The SACF may be used to model the passing of authentication-values between the authentication-func-

tion and the ACSE service-provider. An ASE that references ACSE need not be concerned with these parameters.

6.2 Authentication {NEW}

This International Standard includes the Authentication functional unit. The functional unit allows APIs, AEs and their related objects to exchange authentication information during the establishment of an association.

6.2.1 Authentication concepts

This International Standard includes the modeling concepts of authentication-function, authentication-mechanism, authentication-mechanism name and authentication-value. Each is discussed below.

6.2.1.1 Authentication-function

6.2.1.1.1 For this International Standard, authentication is supported by a pair of authentication-functions. An **authentication-function** is modeled as an application-function (i.e., is an (N)-function as defined in ISO 7498) that is available to the ACSE service-user. Each is contained within the associated AEs.

6.2.1.1.2 Modeling the authentication-function in this way allows ACSE to deal with authentication communication requirements without having to understand the semantics of the security information exchanged or how it is used.

6.2.1.2 Authentication-mechanism

6.2.1.2.1 An **authentication-mechanism** is a particular specification of the processing to be performed by a pair of application-functions for authentication. A specification contains the rules for creating, sending, receiving and processing information needed for authentication.

6.2.1.2.2 Annex B in ISO 8650 is an example of an authentication-mechanism. It defines the authentication of the sending AEI based on its AE title and its password. The password is contained in the Authentication-value parameter.

6.2.1.3 Authentication-mechanism name

6.2.1.3.1 An **authentication-mechanism name** is used to specify a particular authentication-mechanism. For example, the name of the authentication-mechanism specified in ISO 8650 annex B is assigned (i.e., registered) in the annex. The value has the data type of an OBJECT IDENTIFIER.

6.2.1.3.2 An authentication-mechanism name may also be used to specify a more general security mechanism that includes an authentication-mechanism. An example of a general security mechanism is an ASE that provides security facilities to its service-user).

6.2.1.3.3 Authentication-mechanism names and general security mechanism names are subject to registration within OSI (see clause 12 in ISO 8650).

6.2.1.4 Authentication-value

6.2.1.4.1 An **authentication-value** consists of information used by a pair of authentication-functions to perform authentication. It can consist of information such as, credentials, a time-stamp, a digital signature, etc. It can also identify the

type and/or name of object to be authenticated, such as the AE, a human user, etc.

6.2.1.4.2 The semantic structure of an authentication-value is specified by the authentication-mechanism involved.

6.2.1.4.3 An authentication-function provides an authentication-value to its AEI to be sent to the peer AEI. The peer AEI's authentication-function receives and processes this authentication-value. For example, it may use the value to authenticate objects at the sending AEI.

6.2.1.4.4 An authentication-mechanism may be part of a ASE that provides security facilities to its service-user. In this situation, the authentication-mechanism name identifies the ASE; the authentication-value is an APDU of the ASE.

6.2.2 ACSE authentication facilities

6.2.2.1 The ACSE Kernel functional unit does not support authentication. However, AP Title, AE Qualifier, AP invocation-identifier and AE invocation-identifier values are optionally transferred during the establishment of an association. They may be used to identify the calling, called and responding AEIs.

6.2.2.2 The ACSE Authentication functional unit supports the transfer of authentication-values as part of the A-ASSOCIATE service. An authentication-value is treated as an atomic item by ACSE. Its semantics are transparent to the ACSE service-provider.

6.2.2.3 The facilities of the Authentication functional unit may be used to convey other security-related information. This may be done with the transfer of authentication information during association establishment.

{END OF REPLACED CLAUSE 6.}

7 Service overview

{INSERT THE NEW HEADING 7.1.}

7.1 ACSE services {NEW HEADING}

{MOVE THE PARAGRAPHS UNDER ORIGINAL CLAUSE 7 TO THIS SUBCLAUSE AND RENUMBER THE PARAGRAPHS ACCORDINGLY. THEN INSERT NEW SUBCLAUSE 7.2.}

7.2 Functional units {NEW}

7.2.1 Functional units are used by this International Standard to identify ACSE user requirements during association establishment. Two functional units are defined:

- a) Kernel functional unit; and
- b) Authentication functional unit.

7.2.2 The Kernel functional unit is always available, and includes the basic services identified in 7.1.

7.2.3 The Authentication functional unit supports authentication during association establishment. The availability of this functional unit is negotiated during association establishment. This functional unit does not include additional

services. It adds parameters to the A-ASSOCIATE and A-ABORT services.

7.2.4 Table a shows the services and parameters associated with the ACSE functional units. The services and their parameters are discussed in clause 9.

{INSERT NEW TABLE a. RENUMBER THE REMAINING TABLES AND ADJUST REFERENCES TO THESE TABLES IN THE TEXT.}

8 Relationship with other ASEs and lower layer services {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

9 Service definition

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.1 A-ASSOCIATE service

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.1.1 A-ASSOCIATE parameters

{TABLE 2 — ADD THE FOLLOWING PARAMETERS AFTER Responding AE Invocation-identifier.}

ACSE Requirements	U	C	C	C(=)
Authentication-mechanism Name	U	C(=)	U	C(=)
Authentication-value	U	C(=)	U	C(=)

{INSERT NEW SUBCLAUSES 9.1.1.14a, 9.1.1.14b AND 9.1.1.14c AFTER SUBCLAUSE 9.1.1.14 Responding AE Invocation-identifier.}

9.1.1.14a ACSE Requirements {NEW}

This parameter is used by the requestor to indicate the functional units requested for the association. If not present,

Table a — Functional unit services and their parameters {NEW}

Functional Unit	Service	Parameter
Kernel	A-ASSOCIATE	Mode Application Context Name Calling AP Title Calling AE Qualifier Calling AP Invocation-identifier Calling AE Invocation-identifier Called AP Title Called AE Qualifier Called AP Invocation-identifier Called AE Invocation-identifier Responding AP Title Responding AE Qualifier Responding AP Invocation-identifier Responding AE Invocation-identifier User Information Result Result Source Diagnostic Calling Presentation Address Called Presentation Address Responding Presentation Address Presentation Context Definition List Presentation Context Definition Result List Default Presentation Context Name Default Presentation Context Result Quality of Service Session Requirements Initial Synchronization Point Serial Number Initial Assignment of Tokens Session-connection Identifier
	A-RELEASE	Reason User Information Result
	A-ABORT	Abort Source User Information
	A-P-ABORT	Provider Reason
Authentication	A-ASSOCIATE	Authentication-mechanism Name Authentication-value
	A-ABORT	Diagnostic

only the Kernel functional unit is available for the association. In supporting this negotiation mechanism, the ACSE service-provider removes values for unsupported functional units before issuing the indication primitive to the acceptor.

This parameter is used by the acceptor to indicate which of the requested functional units the acceptor selects. The acceptor shall not select a functional unit in the response primitive which was not requested in the indication primitive.

The value of the parameter in the response primitive is delivered unchanged in the confirm primitive.

This parameter takes on the following symbolic value:

—authentication.

9.1.1.14b Authentication-mechanism Name {NEW}

This parameter is only used if the ACSE Requirements parameter includes the Authentication functional unit. If present, the value of this parameter identifies the authentication-mechanism in use. If not present, the communicating AEs must implicitly know the mechanism in use, e.g., by prior understanding.

NOTES

1 Some authentication-mechanisms may require this parameter, and if so, will state this in their specification.

2 This parameter may specify a more general authentication mechanism. For example, it may specify an ASE that provides security facilities to its service-user.

9.1.1.14c Authentication-value {NEW}

This parameter shall only be used if the ACSE Requirements parameter includes the Authentication functional unit.

The Authentication-value parameter is used as defined below.

a) If present on the request or the response primitive, it contains an authentication-value generated by the authentication-function in the AEI that issued the service primitive. It is intended for the peer's authentication-function.

b) If present on the indication or the confirm primitive, it contains an authentication-value generated by the authentication-function in the AEI that issued the corresponding request or response primitive. It is intended for the peer's authentication-function.

{END OF INSERTED SUBCLAUSES 9.1.1.a, 9.1.1.b AND 9.1.1.c.}

9.1.1.18 Diagnostic

{REPLACE THE FIRST PARAGRAPH USING THE FOLLOWING TEXT.}

This parameter may be used by the acceptor to provide diagnostic information about the establishment of the association.

{TO THE LIST OF SYMBOLIC VALUES FOR THE ACSE SERVICE-USER ADD THE FOLLOWING.}

Authentication-mechanism Name not recognized;

Authentication-mechanism Name required;

Authentication failure; or

Authentication required.

{END OF ADDED SYMBOLIC VALUES.}

9.1.2 A-ASSOCIATE procedure {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.2 A-RELEASE service {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.3 A-ABORT service

{NO CHANGE TO THE INTRODUCTORY TEXT}

9.3.1 A-ABORT parameters

{TABLE 4 — ADD THE FOLLOWING PARAMETER AFTER Abort Source.}

Diagnostic	U	C(=)
------------	---	------

{RENUMBER THE ORIGINAL 9.3.1.2 AS 9.3.1.3. INSERT NEW SUBCLAUSE 9.3.1.2 USING THE FOLLOWING TEXT.}

9.3.1.2 Diagnostic

The requestor may optionally include diagnostic information on the request primitive. It takes one of the following symbolic values:

No reason given;

Protocol error;

Authentication-mechanism Name not recognized;

Authentication-mechanism Name required;

Authentication failure; or

Authentication required.

9.3.2 A-ABORT service procedure {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

9.4 A-P-ABORT service {NO CHANGE}

{NO CHANGE IS MADE TO THIS SUBCLAUSE.}

10 Sequencing information {NO CHANGE}

{NO CHANGE IS MADE TO THIS CLAUSE.}

ISO 8649

AMENDMENT 2: Connectionless-mode ACSE Service

{MOVE THE INTRODUCTION (THE ORIGINAL CLAUSE 0) TO THE FRONT OF THE INTERNATIONAL STANDARD AS A PRELIMINARY ELEMENT. WHEN THIS IS DONE, THE INTRODUCTION WILL BE ON PAGE "iv" AND THE NUMBERS PRECEDING THE PARAGRAPHS OF THE ORIGINAL CLAUSE 0 WILL BE DELETED.}

0 Introduction

{ADD AN ADDITIONAL PARAGRAPH FOLLOWING THE FOURTH PARAGRAPH AS FOLLOWS.}

ACSE provides both connection-oriented and connectionless mode of service. For its connection-oriented services, the ACSE uses presentation connection-oriented services (ISO 8822). For the connectionless service, the ACSE uses the presentation connectionless service (ISO 8822/Amd.1).

1 Scope

{DELETE THE FIRST PARAGRAPH AND REPLACE WITH THE FOLLOWING THREE PARAGRAPHS}

This International Standard defines ACSE services for application-association control in an open systems interconnection environment.

The ACSE connection-oriented services are provided by the use of the connection-oriented ACSE protocol (ISO 8650) in conjunction with the connection-oriented presentation-service (ISO 8822). These ACSE services assume as a minimum the use of the presentation-service connection-oriented Kernel functional unit.

The ACSE connectionless-mode service (A-UNIT-DATA) is provided by the use of the connectionless ACSE protocol (ISO/IEC 10035) in conjunction with the connectionless-mode presentation-service (P-UNIT-DATA - ISO 8822/Amd.1).

2 Normative References

{ADD THE FOLLOWING REFERENCES}

ISO 7498/Add.1: 1987, *Information processing systems - Open Systems Interconnection - Basic Reference Model - Addendum 1: Connectionless-mode transmission.*

ISO/IEC 10035: 1991, *Information technology - Open Systems Interconnection - Connectionless ACSE Protocol to provide to Provide the Connectionless-mode ACSE Service.*

ISO 8822/Amd.1: 1991, *Information processing systems - Open Systems Interconnection - Connection oriented presentation service definition - Amendment 1: Connectionless mode presentation service.*

3 Definitions

3.1 Reference Model Definitions

3.1.1 Basic reference model definitions

{REPLACE THE SENTENCE UNDER 3.1.1 WITH THE FOLLOWING TEXT}

This International Standard is based on the concepts developed in ISO 7498 and 7498/Add.1 and makes use of the following terms defined in them:

{ADD THE FOLLOWING TO THE LIST OF TERMS ACCORDING TO THE ALPHABETICAL ORDER.}

- connectionless-mode presentation-service;
- (N)-connectionless-mode transmission.

3.3 Presentation service definitions

{REPLACE THE TEXT UNDER 3.3 WITH THE FOLLOWING}

This International Standard makes use of the following terms defined in ISO 8822 and ISO 8822/Add.1.

{ADD THE FOLLOWING TO THE LIST OF TERMS}

h) connectionless mode [presentation]

3.4 ACSE service definitions

{REPLACE 3.4.1 WITH THE FOLLOWING TEXT}

3.4.1 application-association: A cooperative relationship between application-entity invocations which enables the communication of information and the coordination of their joint operation for an instance of communication. This relationship is formed by the transfer of application-protocol-control-information using the presentation service.

4 Abbreviations *(NO CHANGE)*

{NO CHANGE IS MADE TO THIS CLAUSE.}

5 Conventions *(NO CHANGE)*

{NO CHANGE IS MADE TO THIS CLAUSE.}

6 Basic concepts

{REPLACE THE THIRD SENTENCE OF 6.1.3 WITH THE FOLLOWING TEXT}

This relationship is formed by the communication of application-protocol-control-information between the application-entity invocations through their use of presentation-services.

7 Service overview

{ADD TO THE END OF THE LIST IN 7.1}

e) A-UNIT-DATA.

{ADD THE FOLLOWING}

7.9 The A-UNIT-DATA service provides a service for information transfer between AEs using the connectionless-mode presentation service.

8 Relationships to other ASEs and lower layer services

8.2 Presentation-service

{ADD THE FOLLOWING}

8.2.6 The A-UNIT-DATA service requires access to the P-UNIT-DATA service.

9 Service definition

{REPLACE TABLE 1}

Table 1 - ACSE-services

MODE	SERVICE	TYPE
Connection oriented	A-ASSOCIATE A-RELEASE A-ABORT A-P-ABORT	Confirmed Confirmed Non-confirmed Provider initiated
Connectionless	A-UNIT-DATA	Non-confirmed

{ADD THE FOLLOWING NEW SUBCLAUSE 9.5}

9.5 A-UNIT-DATA service

The A-UNIT-DATA service is used to transfer information between AEs using connectionless-mode presentation services. It is a non-confirmed service.

9.5.1 A-UNIT-DATA Parameters

Table 7 lists the A-UNIT-DATA service parameters. In addition, groups of parameters are defined for reference by other ASEs as follows:

- a) Calling AE Title is the composite of the Calling AP Title and the Calling AE Qualifier parameters; and
- b) called AE Title is the composite of the Called AP Title and the Called AE Qualifier parameters;

The two components of the AE title (AP title and AE qualifier) are defined in ISO 7498-3.

9.5.1.1 Application Context Name

This parameter identifies the application context which applies to this instance of communication. It is nominated by the requestor.

9.5.1.2 Calling AP Title

This parameter identifies the AP whose invocation contains the requestor of the A-UNIT-DATA service.

9.5.1.3 Calling AE Qualifier

This parameter identifies a particular AE within an AP whose invocation is involved in the current exchange. The associated AE invocation contains the requestor of the A-UNIT-DATA service.

9.5.1.4 Calling AP Invocation-identifier

This parameter identifies the AP invocation that contains the requestor of the A-UNIT-DATA service.

9.5.1.5 Calling AE Invocation-identifier

This parameter identifies the particular AE invocation which is involved in the current exchange. The associated AE invocation contains the requestor of the A-UNIT-DATA service.

9.5.1.6 Called AP Title

This parameter identifies the AP whose invocation contains the intended acceptor of the A-UNIT-DATA service.

9.5.1.7 Called AE Qualifier

This parameter identifies a particular AE within an AP whose invocation is involved in the current exchange. The

associated AE invocation contains the intended acceptor of the A-UNIT-DATA service.

9.5.1.8 Called AP Invocation-identifier

This parameter identifies the AP invocation that contains the intended acceptor of the A-UNIT-DATA service.

9.5.1.9 Called AE Invocation-identifier

This parameter identifies the particular AE invocation which is involved in the current exchange. The associated AE invocation contains the intended acceptor of the A-UNIT-DATA service.

9.5.1.10 User Information

The user information parameter is mandatory. The meaning of this parameter depends on the application context that accompanies the primitive.

NOTE- The amount of user information which can be transferred is limited by the underlying presentation service provider.

9.5.1.11 Calling Presentation Address

This parameter is as defined in ISO 8822/Amd.1.

9.5.1.12 Called Presentation Address

This parameter is as defined in ISO 8822/Amd.1.

Table 7 - A-UNIT-DATA parameters

Parameter Name	Req	Ind
Application Context Name	M	M(=)
Calling AP Title	U	C(=)
Calling AE Qualifier	U	C(=)
Calling AP Invocation-identifier	U	C(=)
Calling AE Invocation-identifier	U	C(=)
Called AP Title	U	C(=)
Called AE Qualifier	U	C(=)
Called AP Invocation-identifier	U	C(=)
Called AE Invocation-identifier	U	C(=)
User Information	M	M(=)
Calling Presentation Address	P	P
Called Presentation Address	P	P
Presentation Context Definition List	P	P
Quality Of Service	P	

9.5.1.13 Presentation Context Definition List

This parameter is as defined in ISO 8822/Amd.1.

9.5.1.14 Quality Of Service

This parameter is as defined in ISO 8822/Amd.1.

9.5.2 A-UNIT-DATA Procedure

9.5.2.1 The A-UNIT-DATA procedure is directly related to that defined for P-UNIT-DATA service.

9.5.2.2 The requestor issues an A-UNIT-DATA request primitive. The called AEI is identified by parameters on the request primitive. Use of the A-UNIT-DATA service is restricted to connectionless operation.

9.5.2.3 The ACSE service provider issues an A-UNIT-DATA indication primitive to the acceptor.

9.5.2.4 The acceptor accepts the A-UNIT-DATA indication. No response primitive is returned.

10 Sequencing information

(ADD THE FOLLOWING NEW SUBCLAUSE 10.5)

10.5 A-UNIT-DATA

10.5.1 Type Of Service

A-UNIT-DATA service is a non-confirmed service.

10.5.2 Usage Restrictions

The A-UNIT-DATA service operates completely independently from other connection-oriented ACSE services. Both forms of communications can occur concurrently between any given pair of communicating AE invocations.

10.5.3 Disrupted Services

The A-UNIT-DATA service does not disrupt any services.

10.5.4 Disrupting Services

The A-UNIT-DATA service is not disrupted by any services. However, delivery of the A-UNIT-DATA may fail without notice because there is no confirmation and failures can occur in supporting services.

10.5.5 Collisions

The simultaneous issuing of A-UNIT-DATA request from two AEIs to each other results in the acceptance of both A-UNIT-DATA indication primitives. No collision situation results.

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